Environmental Health Activities in Michigan

NCEH in Partnership with Michigan

The National Center for Environmental Health (NCEH) is part of the Centers for Disease Control and Prevention (CDC). NCEH's work focuses on three program areas: identifying environmental hazards, measuring exposure to environmental chemicals, and preventing health effects that result from environmental hazards. NCEH has approximately 450 employees and a budget for 2004 of approximately $189 million; its mission is to promote health and quality of life by preventing or controlling diseases and deaths that result from interactions between people and their environment.

NCEH and partners in **Michigan** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **$4.9 million** in direct funds and services to Michigan for various projects. These projects include activities related to addressing asthma, characterizing phthalate exposure among men eating Great Lakes fish, and preventing childhood lead poisoning. In addition, Michigan benefits from national-level prevention and response activities conducted by NCEH or NCEH-funded partners.

Identifying Environmental Hazards

NCEH identifies, investigates, and tracks environmental hazards and their effects on people's health. Following are examples of such activities that NCEH has conducted or supported in **Michigan**.

- **Addressing Asthma from a Public Health Perspective**—NCEH is funding the **Michigan Department of Community Health** (**MDCH**) to continue asthma surveillance activities and to fully implement its asthma plan, which was developed through a statewide collaborative effort. Implementation of the statewide comprehensive asthma plan will reduce the burden of asthma in the home, school, and occupational environments through disease tracking, science-based interventions, and statewide partnerships. Funding began in fiscal year 2000 and ends in fiscal year 2005.

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- **Investigation of the June 26–July 16, 2002, Events in the New Haven Drinking Water Distribution System**—NCEH reviewed epidemiologic data collected by the **Macomb County Health Department** and the operational and water quality data collected by the **Michigan Department of Environmental Quality** (**MDEQ**) as part of an investigation of the possible link between water quality issues and human illness in **New Haven** after two water main breaks. The study revealed no relation between the reported illnesses and the changes in water quality and distribution system integrity. This study was funded in fiscal year 2003.

Measuring Exposure to Environmental Chemicals

NCEH measures environmental chemicals in people to determine how to protect people and improve their health. Following are examples of such activities that NCEH conducted or supported in **Michigan**.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2004, CDC provided more than $1.8 million to **Michigan** to help expand chemical laboratory capacity to prepare for and respond to chemical-terrorism incidents and other chemical emergencies. This expansion will allow full participation of chemical-terrorism response laboratories in the Laboratory Response Network.

Studies

- **Characterizing Phthalate Exposure Among Men Eating Great Lakes Fish**—Phthalates, common industrial chemicals used in a variety of applications, are among the most abundant

synthetic chemicals in the environment. They are found in a variety of consumer products and have been detected in sediment and surface water of the United States, including the Great Lakes Basin ecosystem. The highest concentrations have been found in streambed sediment and water in urban areas. **Southeastern Michigan**, the region from which study participants will be recruited, is the most heavily populated and industrialized area in Michigan.

The purpose of this pilot study, conducted in collaboration with **Michigan State University**, is to determine levels of nine phthalate metabolites in 50 men who eat fish caught in the Great Lakes. On the basis of questionnaire data, half of the men will be categorized as people who eat large amounts of fish and half as people who eat small amounts of fish. The mens' phthalate levels will be compared to determine the contribution of fish consumption to the phthalate body burden. NCEH has received 26 urine samples; analytic results from these samples were returned to Michigan State University in December 2004.

- **Colorectal Neoplasia Screening with Colonoscopy in Asymptomatic, Average-Risk Women at Regional Navy/Army Medical Centers (CONCeRN)**—The NCEH laboratory, in collaboration with the National Cancer Institute (NCI) and the **University of Michigan**, will analyze folate species, vitamin B12, vitamin B6, and homocysteine in blood specimens for the CONCeRN study. Researchers at NCI have enrolled approximately 1,500 asymptomatic women referred for colorectal screening to assess the benefits of colonoscopy versus sigmoidoscopy and to assess potential risk-factor associations with prevalence of polyps. Epidemiologic studies have shown associations between folate status and colon cancer. The NCEH laboratory will use its new state-of-the-art tandem mass spectrometry method to measure folate species in serum samples from study participants. The study is ongoing; results are expected in 2005.
- **A Pilot Exposure Investigation: Dioxin Exposure Among Adults Living in the Tittabawassee River Flood Plain, Saginaw County**—Dioxins are chemical by-products of industrial and combustion activities, including the manufacture of chemicals and pesticides. Dioxins are found at low levels in air, soil, water, and sediment, as well as in foods such as meat, dairy products, fish, and shellfish. Adverse health effects have been found in people who have been exposed to high levels of dioxins. Carcinogenic health effects and adverse genetic, reproductive, and developmental effects have been found in animal studies.

  During April–December 2000, **MDEQ** conducted environmental sampling in the Tittabawassee River basin and found elevated levels of dioxins throughout the flood plain. This finding prompted a pilot investigation by MDEQ and MDCH. The pilot study collected soil and indoor-dust samples from the area and blood samples from 25 residents. The blood samples will be analyzed to determine levels of dioxins, furans, and coplanar polychlorinated biphenyls. The NCEH laboratory has received and analyzed 20 blood samples in this ongoing investigation.

Services

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with **Michigan**'s public health laboratory to prepare state laboratory scientists to measure chemical-terrorism agents or their metabolites in people's blood or urine. NCEH is transferring analytic methods for measuring chemical-terrorism agents (including cyanide-based compounds and other chemicals) to Michigan. In addition, NCEH instituted a proficiency-testing program to measure the comparability of the state's analytic results with results from the NCEH laboratory.
- **Lipid Standardization Program (LSP)—**NCEH provides two lipid research laboratories in **Michigan** with accuracy-based standardization support for analytic measurement. These laboratories are involved in one or more ongoing lipid metabolism longitudinal studies or clinical trials that investigate risk factors and complications associated with cardiovascular disease. The LSP, supported by NCEH's Lipid Reference Laboratory, provides quarterly analytic performance challenges and statistical assessment reports that allow program participants to monitor performance over time and thus ensure the accuracy and comparability of study results and findings.

- **Newborn Screening Quality Assurance Program—**NCEH provides proficiency-testing services and dried-blood-spot quality-control materials to monitor and help assure the quality of screening program operations for newborns in **Michigan**. Michigan screens newborns for 12 diseases and conditions. The importance of accurate screening tests for genetic metabolic diseases cannot be overestimated. Testing of blood spots collected from newborns is mandated by law in almost every state to promote early intervention that can prevent mental retardation, severe illness, and premature death.

Preventing Health Effects That Result from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Following are examples of such activities that NCEH conducted or supported in **Michigan**.

- **Childhood Lead Poisoning Prevention Program**—The **Michigan Childhood Lead Poisoning Prevention Program** (**MI CLPPP**) has received NCEH funding since 1992. NCEH has also funded the city of **Detroit** (**Detroit CLPPP**) under a separate cooperative agreement since 1992. In 2001, both programs combined screened 83,867 children for lead poisoning; 5,109 children under 6 years of age had elevated blood lead levels.

  The Detroit CLPPP and MI CLPPP are using NCEH funds to implement plans to eliminate childhood lead poisoning elimination plan for Detroit the rest of the state, respectively, and to increase their targeted screening and primary prevention activities. The programs are also using NCEH funds to maintain the existing surveillance system, increase protective policy, and build strategic partnerships.

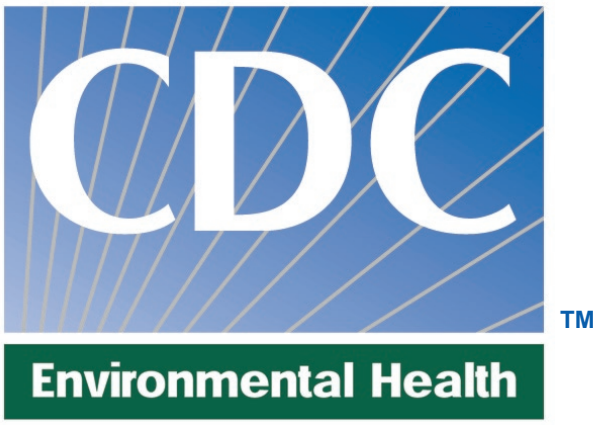
- **Building Communities of Excellence Through Environmental Health Capacity-Building**—In fiscal year 2004, NCEH established a 3-year cooperative agreement with the **Detroit Department of Health and Wellness Promotion** to implement the environmental health services and capacity-building components of a comprehensive asthma program for the city of **Detroit**. The ultimate goal is to reduce asthma exacerbations due to environmental triggers. Successful implementation of the program is expected to reduce the number of episodes that result in emergency department visits and hospitalizations, the number of missed school days and resulting adult workdays, and the use of quick-relief medications.

  Activities will include conducting general and topic-specific workshops in the community and schools on asthma triggers (e.g., integrated pest management, mold), conducting home assessment and home cleaning interventions, and promoting indoor air quality programs in day-care centers and schools. Activities will also include educating healthcare personnel and public housing authorities about maintenance issues that can help eliminate asthma triggers, conducting train-the-trainer programs, educating communities about sources of outdoor triggers attributed to various industries, and developing a surveillance program.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track environmental hazards that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues. These issues include air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposure), biomonitoring to determine whether selected chemicals in the environment get into people and to what degree, childhood lead poisoning, emergency preparedness for and response to chemicals and radiation, environmental health services, environmental public health tracking, international emergency and refugee health, laboratory sciences as applied to environmental health, radiation studies, safe disposal of chemical weapons, specific health studies, vessel sanitation, and veterans' health.

For more information about NCEH programs, activities, and publications as well as other resources, contact the NCEH Health Line toll-free at 1-888-232-6789, e-mail NCEHinfo@cdc.gov, or visit the NCEH Web site at www.cdc.gov/nceh.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